

A Wireless Mobile Health-Related Quality of Life Assessment

Cai Wu, MS, Robert J. Volk, PhD, Jeffrey R. Steinbauer, MD,
Grace M. Kuo, PharmD, J. Scott Smith

Department of Family and Community Medicine, Baylor College of Medicine
Houston, TX 77098

Background

Self-administered waiting room questionnaires are popular tools for gathering health information from patients, but they require optical scanning or manual data entry to obtain survey results. The application described here eliminates those extra steps by inputting the results into a remote database directly through wireless connection, and the assessment can be finished easily anywhere in the clinic through a mobile platform. A measure of health-related quality of life, the SF-8™ Health Survey, was used in developing this application for using in the clinical setting. It has only eight questions measuring each of the eight domains of health in the longer SF-36® Health Survey.

Protocol and Process

The Wireless Quality of Life Assessment (W-QOL) 1.0.0 is written by using Microsoft's eMbedded Visual Basic and runs in HPC Pro platform (window CE, H/PC Pro 2.11). It uses a Cisco Aironet 350 Series Wireless LAN Adapter for wireless network connection, Syware mEnable for database connection, and FieldsSoftware PrinterCE for Report printing. The Cisco Wireless LAN Adapter integrates seamlessly into an existing network as a wireless overlay, or creates freestanding all wireless networks enabling mobility quickly, so the database can be connected for Handheld PCs all around the clinic. mEnable allows applications to be written in eMbedded Visual Basic to read from or written to any ODBC-enabled data source. PrinterCE enables applications to send commands to the printer to print the text report.

There are four forms in W-QOL 1.0.0: User Menu, Patient General Information, SF-8™ Health Survey questions and a Report. Patient general information and SF-8™ Health Survey scores are stored in the PBRN database (SQL Server 7.0). The application process is given in Figure 1 and the information process is given in Figure 2. After the patient completes the Patient General Information questions and answers all eight-survey questions, the program stores the

raw data scores and calculated scale and summary scores (Mental Health and Physical Health Summary Score) into a remote database. A report is then generated, which shows all SF-8™ Health Survey scores, the patient general information and the average scores from the same clinical site for patients at the same age group. Then the patient can print the report and take it to his/her physician as a quality of life assessment reference.

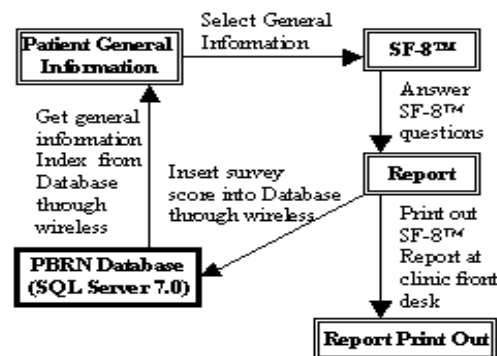


Figure 1 W-QOL 1.0.0 Process

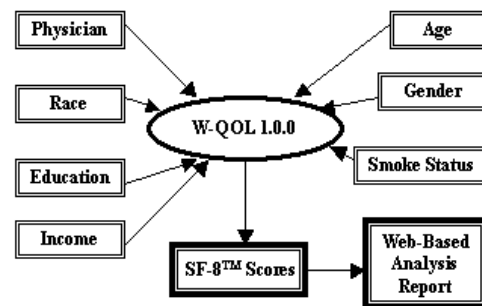


Figure 2 W-QOL Information Process

The W-QOL 1.0.0 simplifies the survey process through wireless network connections and a mobile platform, and directly provides the survey results for patient/physician, and other related information for quality of life assessment research. However, the network accessible area needs to be set so that the network connection which can only be accessed in the clinic. Meanwhile, the battery for the Handheld PC needs to be recharged every 2 hours.